

GOULEY. (J. W. S.)

A General Consideration of
Tumors from a Surgical
Point of View.

*Remarks Introductory to a Discussion
on Tumors before the New York
State Medical Association,
October 10, 1888.*

BY

JOHN W. S. GOULEY, M. D.,

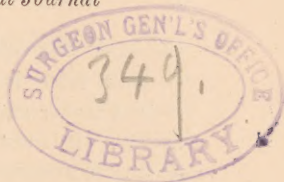
SURGEON TO BELLEVUE HOSPITAL.

REPRINTED FROM

The New York Medical Journal
for October 13, 1888.



*Reprinted from the New York Medical Journal
for October 13, 1888.*



A GENERAL CONSIDERATION OF TUMORS FROM A SURGICAL POINT OF VIEW.

REMARKS INTRODUCTORY TO A DISCUSSION ON TUMORS BEFORE
THE NEW YORK STATE MEDICAL ASSOCIATION,

October 10, 1888.

BY JOHN W. S. GOULEY, M. D.,

SURGEON TO BELLEVUE HOSPITAL.

FOR many years past the importance of periodically examining the question of tumor formation in the human body has been fully recognized by physicians and surgeons, as shown by the reports of discussions, by special articles, and by treatises on tumors that appear at home and abroad. In such examinations it is sought to render available the advances made from year to year in pathogeny, to incorporate into the nomenclature all proper changes of terms, and to rearrange, in some cases, the species and varieties. The outcome of these periodical revisions is the enlargement of the field of view respecting tumors, together with the adoption of improved methods of treatment by which substantial benefits are conferred upon sufferers. The subject is not likely to be exhausted for many generations; it is always before the profession and often before the people, especially when some eminent personage is affected with malignant disease. The laity then ask—What is a tumor? Is it the same as a cancer? Has a cancer spreading roots like

the claws of a crab, from which it is said to derive its name?—while many individuals gravely assert that X is suffering from a cancer and not a tumor, or from a tumor and not a cancer. It is not easy to convince certain non-medical persons that a tumor means nothing more than a swelling, and that this swelling may be benign and never return after it is cut, or may be cancerous, malignant; that, besides cancers, there are other tumors which are malignant; that there are tumors which, though benign in structure, may imperil life by their liability to bleed excessively, or by their interference with vital functions; and that there are tumors which may be infectious, glandular, or cystic.

The term tumor is here used to signify a swelling in any part of the body, exclusive of tumefactions arising from inflammatory action, contusions, wounds, fractures, luxations, aneurysms, etc. In accordance with this view, the tumors may be arranged into four classes, as follows: Class I, neoplasmata; Class II, adenomata; Class III, blastomata; Class IV, cystomata.

For the present the first class only will be considered.

The term neoplasma, meaning literally a new formation, was long ago used, for the sake of greater precision, by Burdach, and adopted by other pathologists, as the name of the class of new formations in the human body arising from simple division or from endogenous multiplication of pre-existing cells. It is applicable to certain benign as well as to malignant tumors, but not to adenomata, granulation growths, or cysts.

The reason for regarding these tumors as new formations is that they are developed independently of the matrix tissue by which they are surrounded, and that they act as independent bodies, and bear no relative increase or decrease of size with, though they derive their sustenance from, the organism. They differ in their development from the

matrix tissue, and their histogenesis is very unlike the formative processes originating in inflammation. Many of the neoplasmata occur at all ages; they begin in apparently normal tissues, and are due to the persistence of embryonic germinal tissues in the otherwise mature organism, taking their rise in what may be called belated rudiments—foci of embryonic tissue which have not been utilized in elaborating normal tissues, and so have lingered on unchanged. In other words, such growths are atypical new formations, starting in latent embryonic rudiments. The germs of the growths may be very small and elude observation, being embryonic cells, or may be quite recognizable among the normal elements. These germs may long remain inactive; but when external conditions, supply of nutriment, and relation with surrounding tissues are favorable, they begin to multiply, start into new life, and form neoplasmata. The blood-vessels of neoplasmata deviate markedly from blood-vessels of normal tissues. Their parietes are very thin in tumors of low organization, and of nearly natural thickness in tumors of high organization. Lymph-vessels abound in tumors, and have been found to communicate with cancer alveoli. Such, in brief, are the views of Hasse, Cohnheim, Lancereaux, and other pathologists.

Clinical observation, supplemented by microscopical examination, has established the fact that neoplasmata of high organization are benign, while those of low organization are malignant, and that the lower the organization, the greater the malignancy. For instance, among the epithelial neoplasmata the medullary carcinomata are the most malignant, being of the lowest organization; and among the endothelial neoplasmata the round-celled sarcomata are the most malignant, being of the lowest organization.

Several modern authors classify neoplasmata clinically, or rather prognostically, that is to say, into benign and

malignant tumors. Classification on such a basis is confusing and unsatisfactory, partly because varieties of certain species of benign neoplasmata, being often malignant, become so widely separated from their species that they can not be advantageously studied. Other authors endeavor to classify them on the basis of Müller's law, and also on the blastodermic theory, but with little consistency. The authors who adopt the view of His in regard to the blastodermic theory arrange certain neoplasmata into those of archiblastic and those of parablasic origin, the archiblastic being the epithelial and the parablasic the endothelial (connective-tissue) neoplasmata. The law of Müller and the blastodermic theory are both of very great service in the study of neoplasmata, but neither affords sufficient amplitude to stand as a basis for nomenclature and classification. It is only anatomy—not merely as anthropotomy, but in its wider sense of anthroposophy—that has the requisite breadth for this foundation, since, in the sense in which it is here used, it comprises embryology, physiology, histology, and all that is essential to the knowledge of man in a state of health, without which it is not possible to have a correct conception of any departure from this state of health. The advantages of this broad basis are such that it deserves to be more closely and consistently adhered to than it has been by most of the investigators and teachers.

A fair knowledge of the anatomy, physiology, histology, and pathology of vegetables, as well as of the lower animals, can not fail to be of great value as a preliminary to the right understanding of the diseases of man, and very particularly of tumors, which are known to occur so frequently in the vegetable kingdom and among the lower animals.

In case of a rigid adherence to the anatomical basis of nomenclature, the following simple rules may serve to guide the nomenclator:

1. The ordinal names of neoplasms should accord with the names of the types of tissues to which their substance belongs—*e. g.*, epithelial neoplasms, endothelial (connective-tissue) neoplasms, muscle-tissue neoplasms, nerve-tissue neoplasms, vessel-tissue neoplasms.

2. The generic names of neoplasms should accord with the name of the particular tissue of which, respectively, they are chiefly composed—*e. g.*, myxoma, inoma, chondroma, osteoma, etc.

3. The specific names of neoplasms should be the same as the generic names with the affixion of the special character of the tissue entering into their composition—*e. g.*, round-celled sarcoma, spindle-celled sarcoma, giant-celled sarcoma.

Some of the generic and specific names of neoplasms are objectionable by reason of their failing to convey a correct notion of the histogenic characters of the growths which they are intended to designate. Among the most inaccurate are carcinoma and sarcoma. The first name has nothing in common with a polymorpho-cellular epithelioma, and the second was given by Abernethy to a genus with eight species of tumors having a "fleshy feel," in contradistinction from cartilaginous and osseous tumors. This term was afterward adopted by Virchow and Cornil and Ranvier for a genus of the connective-tissue neoplasms. Strictly, sarcoma can never have any other meaning than that of a fleshy tumor; therefore, in keeping with the anatomical nomenclature, a more significant name should be given to this genus. Granting that epithelioma is of epithelial origin, and that sarcoma is of endothelial origin, why, then, in accordance with its origin, should not endothelioma be used instead of sarcoma to designate the genus of lowest grade of the connective-tissue neoplasms, placing as a species of this genus the growth now known by

the name of endothelioma? But, unfortunately, the terms epithelium and endothelium are not of the best. These questions are submitted to the patho-histologists for consideration in the hope that they will soon critically examine the terms carcinoma, sarcoma, and other equally inappropriate names.

4. The varieties should bear the names of their species with the affixion of the name of the substance which is superadded—*e. g.*, globo-cellular *myxo*-sarcoma, fuso-cellular *ino*-sarcoma, giganto-cellular *osteo*-sarcoma, and so on with *chondro*-, *lipo*-, *neuroglio*-, *lympho*-, etc.

5. The subvarieties should bear the names of the varieties with the affixion of characters which are common to the varieties of different species—*e. g.*, *telangiectatic* globo-cellular myxo-sarcoma, telangiectasis occurring in many varieties of tumors.

Nomenclature and classification provisionally constructed on such a plan must necessarily be helpful in a high degree to the right understanding of the nature of the different neoplasms, besides rendering their study less laborious than heretofore, and constantly suggesting improvements.

But the subject is too large to be disposed of in a limited essay, and it would not be wise, on an occasion like this, to undertake more than its general consideration. The special investigation of its divisions and subdivisions should be reserved for future debates, and only the most salient points of theoretical and practical value should be introduced in order to elicit in brief the views of the fellows and the judgment of the association.

To this end the following questions are propounded:

Question 1.—What are neoplasms, and what are the characters which differentiate them from blastomata, and these from inflammatory processes?

Question 2.—What are the advantages of naming and arranging the neoplasmata in accordance with their histogenesis?

Question 3.—What is the value of the anatomical basis to the clinician when the question of malignity arises?

Question 4.—What are the objections to the grouping of neoplasmata in accordance with benignity and malignity?

Question 5.—What constitutes malignity histologically and clinically?

Question 6.—What is the mechanism of the necrotic process which so often occurs in certain neoplasmata?

Question 7.—What is the rationale of the recurrence of excised neoplasmata in distant parts or in the viscera?

Question 8.—What is the explanation of the tendency in certain neoplasmata to involve secondarily neighboring lymphatic ganglia?

Question 9.—What therapeutic deductions are to be drawn from the analysis of the genesis and history of a given neoplasma?

Question 10.—What are the indications and contra-indications of the excision of neoplasmata?

Question 11.—What is the average duration of life from the time of the appearance of malignant neoplasmata which have not been treated?

Question 12.—To what extent does the excision of malignant neoplasmata prolong life?

Question 13.—Are malignant neoplasmata ever cured?

Question 14.—What is the rate of mortality from malignant neoplasmata as compared with other diseases?

In this introduction to the discussion it is not proposed to examine all the preceding questions, but to request each debater to answer one or several questions, and all the debaters to answer the thirteenth question, and finally to ask

their opinions, particularly on the questions relating to bedside diagnosis, to malignity and its degrees, to prognosis as affected by the seat of the disease, to surgical and medicinal treatment, to recurrence after ablation, and to curability of malignant neoplasmata.

As pertinent to the question of malignity of some of the neoplasmata, the following point will be briefly considered: Until the latter part of the last century it was believed that all tumors were at first benign, and that some of them degenerated into malignant disease through the intervention of a humor. Though it was then shown that this ancient theory of degeneration would not bear close examination, as it was discovered that many tumors were malignant from their beginning, and that others were benign and remained so, still the belief in humoral degeneration continued until the dawn of patho-anatomy; and, notwithstanding the advances made by Abernethy and Laennec, and subsequently by those who developed the cell doctrine, there has long lingered in the minds of many physicians a vague notion of some mysterious kind of degeneration of benign into malignant tumors.

The modern doctrine of metaplasia has since given its aid toward the solution of the question, Is there such a condition as the metamorphosis of benign into malignant tumors?

Retrogressive metaplasia in tumors indicates malignity, progressive metaplasia toward higher organization being a movement in the direction of benignity.

By the aid of this doctrine certain changes in the structure of neoplasmata, ill understood before, can now be accounted for, but metaplasia is most probably one of the ways, and not the only way, to explain these changes. However, there are patho-histologists who declare that benign are transformed into malignant tumors *always* by reversion

of their cells to lower forms of cells. It is clear that only a certain proportion and not all of the cellular element of a benign growth which has become malignant is characteristic of malignity, otherwise there would be no mixed growths, such as sarco-inoma, sarco-lipoma, etc. Is it not likely, also, that, after some local disturbance, benign growths become malignant by an accession of newly proliferated embryonic cells, and therefore, in this case, without the intervention of retrogressive metaplasia of their highly organized cells? In the varieties of these growths there is sometimes only a small proportion of the malignant element, the benign element remaining intact. In accordance with this view of the metamorphosis of new-growths it may be said that benign are not liable to be wholly metamorphosed into malignant growths. One element or another may at some time enter into the composition of a growth, and may become preponderant without entirely destroying the primary element. In this way, then, and not always by retrogressive metaplasia, benign growths may become malignant. New-growths are developed by the proliferation of embryonic cells which exist in the interstices of normal tissues and not ordinarily by retrogressive metaplasia of these tissues. The degree of malignancy is proportionate to the state of organization of the cells; the lower the organization of these cells, the greater the malignancy, the most highly organized being those of benign growths. Whatever substance may be superadded to a tumor, even if the intruder should in time exceed it in bulk, the original element is traceable in the general mass of disease. If this were not the case, a cancer, by progressive metaplasia, would become benign, and how fortunate would be such a circumstance! But a cancer remains a cancer, a sarcoma is always a sarcoma, though it contain bone, cartilage, fibrous tissue, etc. A lipoma is always a lipoma, though a malig-

nant element be superadded. Thus, an inoma may become malignant by the superaddition of the sarcomatous element; it is then a sarco-inoma, an ino-sarcoma being a sarcoma some of whose cells may have undergone progressive metaplasia; and a lipoma may have received an accession of the sarcomatous element and so become malignant; it is then a sarco-lipoma, a lipo-sarcoma being a sarcoma some of whose cells have been transformed into fat cells.

From warty excrescences that have existed many years upon the faces of elderly persons epitheliomata have been known to develop. This may, however, take place by retrogressive metaplasia, but not necessarily in every case.

A sufferer may be affected with benign and malignant neoplasmata at the same time, and some of the benign growths may become infected with the malignant element either by retrogressive metaplasia or by an accession of newly proliferated embryonic cells. The infected growths are worsted by the retrogression or the superaddition, but the whole of their structure is not necessarily transformed.

A new-growth may have had all the clinical characters of benignity for a long time—five, ten, fifteen, or twenty years—and then, possibly after the infliction of a slight injury to the part, or even without injury, rapidly increase in size and progress as a most malignant affection, and this is as likely to be owing to an accession of newly proliferated cells of low organization as to retrogressive metaplasia. Sarcomata and carcinomata sometimes take this course. Therefore, during their period of inaction, they should be excised.

The general histogenic characters of malignity of tumors having been stated, a few words may now be said in reference to some of the clinical characters of malignity. A tumor is said to be malignant when its growth is rapid;

when it exhibits a strong tendency to ulcerate; when the disease invades surrounding tissues; when it propagates itself through the lymphatics to distant parts and to the viscera; when it generalizes itself, infects the whole organism, and finally destroys the patient; or when, after complete excision, it recurs. These are the principal clinical characteristics of malignant tumors. Benign tumors sometimes recur after excision, but in malignant tumors the tendency to recurrence is constant. Some of the benign tumors are prone to necrosis, but all the malignant tumors have this tendency in a most marked degree.

A statement of the gross anatomical characters would here be out of place.

In the case of an incomplete excision of a malignant tumor, even if the smallest particle of the disease be left behind, the cells continue to multiply and, in a short time, the growth attains its former dimensions. This can not well be regarded as a recurrence of the tumor, but as its continuation.

When newly formed tumors occur in the lymphatic ganglia, distant parts, or viscera, a few months after the excision of the original growth, it is fair, as a general rule, to look upon them as metastatic, the metastasis having occurred, perhaps, only shortly before the operation. However, the recurrence of malignant tumors may take place in these several parts without metastasis in a few months or many years after the operation.

The only true recurrence, then, is in the case of the sprouting of an entirely new formation, in the site of a completely excised tumor or elsewhere, a few months or many years after the operation.

Much preliminary study will be required before any attempt can be made to give a satisfactory answer to Question 11, *What is the average duration of life from the time of*

the appearance of malignant neoplasmata which have not been treated? In endeavoring to obtain the information necessary to the accomplishment of this desired end, nothing less than the analysis of many thousands of well-recorded cases should be undertaken. The opinions of different authors on this question though, in several instances, based upon the study of hundreds of cases, would doubtless be greatly modified by the examination of thousands instead of hundreds of cases. The subject needs to be reopened and investigated with the purpose of ascertaining the average duration of malignant neoplasmata of different orders separately.

A contribution toward the answer of Questions 12 and 13 is now offered.

Though, in the majority of instances, the recurrence of malignant neoplasmata after excision is speedy—the disease soon generalizing itself, invading vital parts, and leading to a fatal issue in less than three years—it sometimes happens that they do not recur for many years after excision. It is believed by surgeons of much experience that long periods of immunity are more common than they are ordinarily supposed to be. It is therefore important that this question be freely discussed and that an endeavor be made to determine if it can be answered with a measurable degree of accuracy. Prolonged immunity is doubtless often owing to early and thorough eradication of the growth before certain well-known symptoms have manifested themselves, but this immunity has occasionally been observed even in cases where the neighboring lymphatic ganglia had already participated in the disease.

The following cases are cited in illustration of immunity for periods varying from seven to forty years after the excision of different species of neoplasmata known to be malignant. In the statement of these cases the old nomenclature is employed in most instances :

CASE I. *Epithelioma of the Right Wing of the Nose; Excision and Cauterization with the Thermo-cautery; no Recurrence in Seven Years.*—H. H., sixty years of age, who had for two years been inconvenienced by an epithelioma, one centimetre in diameter, above the right wing of the nose, applied for treatment in the month of August, 1881. An operation was advised and forthwith performed. The integument was incised at a point two millimetres beyond the limit of induration, encircling the growth, which was dissected from its bed. The whole denuded surface, together with two millimetres of peripheral sound skin, was then cauterized with the thermo-cautery of Paquelin, and a layer of dry cotton was applied as the only dressing. The diagnosis was confirmed by a microscopical examination of the excised growth. Cicatrization was complete in three weeks without deformity. Seven years and two months have elapsed since the operation, and there is no sign of recurrence of the disease.

CASE II. *Epithelioma of the Lip; Excision; Recurrence in Eight Years.*—P. J., about fifty years of age, presented himself at the college clinic suffering from an epithelioma of the lower lip which had developed itself only a few months before, and already involved the greater part of the left cheek and the neighboring lymphatic ganglia. Operative interference was deemed inadvisable, and the patient never returned. Eight years prior to the appearance of the growth which destroyed him an epithelioma had been successfully removed from his lip, and he had enjoyed good health during the intervening period.

CASE III. *Epithelioma of the Lip; Recurrence Sixteen Years after its Excision.*—On the same day and during the same hour M. H., almost the counterpart of Case II, presented himself at the clinic, but, instead of eight years, he had been operated upon sixteen years anteriorly for a labial epithelioma, and was five years older than P. J. The disease had recurred, as in the case of P. J., a few months before, and was so far advanced as to forbid an operation. How long he lived after this was not learned.

CASE IV. *Scirrhus Cancer of the Breast; Excision; No*

Recurrence in Thirteen Years.—The following is an extract of a letter lately received from Dr. Alfred L. Carroll respecting a case of mammary cancer operated upon by him: "As regards the case which I mentioned to you . . . it occurred, in 1857 or 1858, in the person of a lady, aged about forty-five, from whom I removed a scirrhus cancer of the mamma. You examined a part of the specimen after removal, and agreed with me as to the unquestionable character of the neoplasm. The adjacent lymphatic glands were not involved. I heard of, and occasionally saw, the patient for nearly thirteen years afterward, during which time there had been no sign of recurrence or secondary infection. After that time she passed from my observation."

CASE V. Scirrhus Cancer of the Breast; Excision; Recurrence in Twenty Years, when a Second Operation was performed, and followed by Cauterization of the Wound; no Recurrence in Three Years and Eight Months.—A single lady, fifty-two years of age, came to seek advice on account of two livid, hard, and painful growths, an inch and a half in mean diameter, respectively, which had sprung from a scar resulting from the excision of her left mamma for a scirrhus cancer twenty years before. Extirpation of these new-growths was advised and executed on the 29th of January, 1885, and the whole wound, whose dimensions were four by six inches, together with half an inch of the surrounding integument, was cauterized with the thermo-cautery and a dressing of dry cotton was applied.

The microscopical examination of both growths showed them to be cancerous. The fibrous stroma was very abundant, and cells of different forms were contained in characteristic alveoli.

The wound was healed in four weeks, and the disease has, so far, shown no tendency to recur.

CASE VI. Scirrhus Cancer of the Breast; Excision; no Recurrence in Twenty-four Years.—A cancerous female breast, excised by Dr. John J. Crane, was sent for examination on the day of the operation. The diseased mass exhibited the gross as well as the microscopical characters of what is ordinarily called scirrhus cancer. The wound soon healed, leaving no trace of the original disease, the adjacent lymphatic ganglia not being

involved. Twenty-four years after the operation Dr. Crane reported the patient as enjoying excellent health and free from any sign of malignant disease.

CASE VII. *Cancerous Tumor; Excision; Recurrence in Thirty Years.*—Dr. Verneuil, of Paris, mentions “the case of a lady from whom he had removed a tumor, which was examined after the operation and pronounced to be cancerous. Thirty years afterward the disease recurred in the scar, and was again extirpated. The microscopic examination completely confirmed the former diagnosis.” (“British Medical Journal,” April 7, 1888.)

CASE VIII. *Scirrhus Cancer of the Breast; Recurrence Twenty-five Years after Excision, when a Second Operation was performed, the Patient Dying in Five Years without Sign of Recurrence.*—Mrs. McB., at the age of fifty, was suffering from a scirrhus cancer of the left breast, which was excised by Dr. Bushe. She remained free from cancer for twenty-five years, when the disease recurred in the scar. Dr. Alexander B. Mott, who relates the case, then took charge of her and excised the new-growth, which was of the size of a “hen’s egg.” She died, aged eighty, five years after the second operation, without having shown any further sign of cancerous disease. A daughter of this lady is said to have died of cancer of the breast.

CASE IX. *Scirrhus Cancer of the Breast; Recurrence Twenty Years after Excision, then Two Years after a Second Operation, and again Twelve Years after a Third Operation; no Recurrence Three Years after a Fourth Operation.*—In the year 1850 Dr. Valentine Mott excised the cancerous mamma of a woman aged forty years. The wound healed rapidly, and there was no recurrence of the disease until 1870, when a small growth appeared in the scar, and was removed by Dr. A. B. Mott. Again, in 1872, the doctor excised from the scar a growth similar to the first. There then followed a period of immunity of twelve years. In 1884 a third small growth was excised by Dr. Mott. The patient was last seen in 1887, and, though seventy-seven years of age, was in good health and free from any sign of malignant disease.

CASE X. *Scirrhus Cancer of Both Breasts; Excision; Re-*

currence in the Lungs Forty Years after the Operation.—In the year 1858 a surgeon of large experience related the case of a woman, both of whose mammary glands had been excised for scirrhus cancer, who remained in good health until forty years after the operation, when she died of cancer of the lungs, as verified by an autopsy.

CASE XI. *Giant-celled Sarcoma of the Right Mamma of Eleven Years' Standing; Excision; Recurrence in Eight Years; a Second Operation; no Recurrence in Six Years.*—Mrs. J. W., fifty-five years of age, was first seen on the 4th of May, 1874, in consultation with Dr. E. F. Preston, of Suffolk County, New York. She received in 1862 a slight blow upon the right breast. One year after this she noticed in this breast a hard but painless tumor, half an inch in diameter, which in eight years increased to three inches in diameter, and became painful. Thenceforth it grew slowly until 1871; afterward its increase was more rapid, particularly in 1873, and when she called with Dr. Preston the tumor measured twenty-seven inches in its greatest circumference. The superficial veins were considerably enlarged. She was in apparently good health, though she suffered pain in the diseased breast, partly owing to its weight.

The operation of excision of the breast was performed on the 9th of May, 1874. An elastic bandage was snugly applied, and an India-rubber cord then tightly drawn around the base of the tumor to control hæmorrhage, according to Esnarch's method, and the entire mamma quickly removed. The wound was then covered with a folded towel and compressed by the two hands of an assistant, who exposed for ligation only two or three bleeding vessels at a time, until thirty were tied. By this precaution the loss of blood was not in excess of eight ounces during the whole operation. The lips of the wound were stitched, and adhesive strips applied, together with other necessary dressings.

The tumor, almost entirely deprived of its blood by the elastic compression, weighed nine pounds, and proved, on microscopical examination, to be a giant-celled sarcoma. The sutures were removed on the fourth day, half of the wound having healed primarily. On the eighth day all but two of the

ligatures came out. The remainder of the wound cicatrized rapidly, and the patient made a good recovery.

Fourteen years have elapsed since the operation.

Desiring to know the present condition of the patient, a letter of inquiry was addressed, on the 21st of April, 1888, to Dr. Preston, who replied as follows :

“ Mrs. J. W. recovered nicely from your operation, and improved very much in her general health afterward. On the 8th of June, 1882, I removed another tumor, about the size of a goose-egg, similar to the previous one, situated in the upper portion of the chest, on the right side, not in the old cicatrix, nor very near it; indeed, the upper border of the tumor was only an inch or two below the clavicle . . . quite near the sternum. From this operation she recovered rapidly and satisfactorily. No further recurrence has taken place. . . . She is now very well, . . . sixty-nine years of age, . . . and engages every day in her usual duties. . . .”

The period of immunity after excision in the above-cited eleven cases of malignant growths averages a fraction over nineteen years.

In three cases there was no recurrence.

In seven cases the disease recurred once in each, as follows: In eight, eight, sixteen, twenty, twenty-five, thirty, and forty years.

In one case the disease recurred three times. The first recurrence was twenty years after the operation; the second, two years after the second operation, when there followed a period of immunity of twelve years; a small growth then appeared which rendered the fourth operation necessary. The patient was living and well three years after the fourth and thirty-seven years after the original operation.

Three cases are still under observation.

In one of these cases there was no recurrence seven years and three months after the operation.

In one case the disease recurred in twenty years, when a second operation was performed. There was no further recurrence in three years and eight months.

In one case the disease recurred in eight years, when a second operation was performed. Six years and three months afterward there was no sign of further recurrence.

Those surgeons who have not lost sight of all their cases after operation can doubtless give similar accounts of long periods of immunity after the excision of malignant neoplasms, although the reverse of long periods of immunity seems to be the rule. The exceptions are, however, more numerous than ordinarily believed.

According to Gross, the ablation of breast cancer is followed by "permanent recovery" in 9.05 per cent. of all cases. The period assigned by him as characterizing such recovery is "over three years."

It will be seen below that Cazin's estimate is 12.6 per cent. "permanent cures," and that he assigns over seven years as the period characterized by him as "permanent cure."

In an analysis of 519 cases of ablation of breast cancers, Gross states that 43 of these 519 cases "were still living, and 4 had died. Of these 47 cases, recurrent growths were removed in six, and there was freedom from disease after the last operation" in 32 cases for between three years and two months to six years; in 7 cases, for between seven years to nine years and six months; and in 8 cases, for between ten years and one month to fifteen years and seven months. In these cases, he says, "the average time of cure was five years and nine months, and the disease had existed before the operation, on an average, for eighteen months and four tenths."

The following, abstracted from the "British Medical Journal," April 7, 1888, shows results of much interest and

the analysis of a great number of cases of tumors, serving as an additional illustration of the question of immunity after operation :

At the late meeting of the French Surgical Congress the question of recurrence of malignant growths after extirpation was discussed by Dr. Cazin, Dr. Verneuil, Dr. Labbé, Dr. Mollière, and others. Dr. Cazin, in introducing the subject, gave a summary of 564 excisions of tumors performed by himself during a period of twenty-four years. Among these tumors were myxomata, chondromata, and sarcomata, besides true cancerous growths. In 102 cases of scirrhus cancer of the breast there was secondary glandular affection in 60; of these, 7 were permanently cured, in 48 recurrence took place, 3 died, and in 2 the result was unknown. Among the remaining 42 cases in which the glands were unaffected, there were 8 cures, 28 recurrences, 2 deaths, and 5 that were lost sight of. In 120 cases of encephaloid cancer the glands were involved in 80; of these, 5 were cured, in 67 the disease returned, 4 died, and 4 could not be traced. Of the remaining 40 cases, in which there was no glandular affection, 8 were cured. Thus, in a total of 222 cases, there were 28, or 12·6 per cent., permanent cures. The cases of scirrhus cancer, viewed separately, give a total of 15 cures, or 14·7 per cent.; but, of those in which the glands were affected, only 7 out of 60, or 11·66 per cent., were cured, while of the others, in which the disease was limited to the breast, permanent cure was obtained in 8 out of 42, or a fraction over 19 per cent. Among the 120 cases of encephaloid cancer, 13, or 10·8 per cent., were cured; but of the 80 in which the glands were involved the proportion of cures was only 5, or 6·25 per cent., while of the 40 in which there was no glandular enlargement, no fewer than 8, or 20 per cent., were cured. In the cases in which recurrence took place the disease returned in from three months to seven years after the operation. . . . Dr. Cazin attributes his success to the freedom with which he removes apparently healthy tissues surrounding the growth, and to the care with which he seeks for and removes, not only diseased glands, but the lymphatics between them and the tumor.

He is not content with exploring the axilla, but makes minute search in the subclavicular region, behind the clavicle, and in the supra-clavicular fossa.

Dr. Verneuil strongly favors medicinal treatment after the excision of malignant growths, while the morbid process is in abeyance, and advises a prolonged course of alkaline medication, such as may be obtained by the use of Vichy water, magnesia, etc., together with arsenic, with a view of neutralizing the gouty diathesis, which he believes to be the predisposing cause of cancer.

Dr. Mollière, of Lyons, thinks that the great point to attend to in estimating the probability of recurrence is the patient's age. If he be young, the disease is so certain to return that he doubts if it is worth while to operate; after fifty there is a fair chance that recurrence may not take place; after seventy it is almost certain that the patient will remain free from the disease.

According to Dr. Cazin's summary, the period of recurrence of malignant neoplasms after excision ranges from the minimum of three months to the maximum of seven years, for he says of his cases "in which recurrence took place" that "the disease returned in from three months to seven years." Therefore, his twenty-eight cases were declared cured presumably only after seven years.

In view of the fact that malignant growths have been known to recur twenty, thirty, and even forty years after excision, it is scarcely safe to speak of permanent cures. The proportion of "permanent cures," or strictly of long periods of immunity, in Dr. Cazin's cases—12·6 per cent.—will strike most surgeons as an excellent exhibit when they take into consideration that in twelve of the twenty-eight "cures" there was glandular involvement, and that thirteen of these twenty-eight cases were of encephaloid cancer. In the summary of Dr. Cazin's cases, published in the "British Medical Journal," it is not stated how long he kept watch

upon his "cured" cases. The question of cure is not so easily disposed of as it might seem at first sight. It does not appear that Dr. Cazin uses the term cure to signify immunity from the disease for many years, since in certain places he qualifies the term by the adjective permanent. The word cure is ordinarily employed to signify restoration of health, and therefore may be admitted in the case of a long period of immunity from a disease, but the qualifying word permanent has the distinct signification "to remain to the end." This qualification could then surely be made in any case of ablation of a malignant growth where the patient has died of some other disease two or three years thereafter; so that even the qualification permanent fails to express the intended idea. The term absolute cure is also employed to convey the notion of a cure free from limitation. But can it be truly said that malignant neoplasms are permanently or are absolutely cured? The uncertainty of the time at which excised malignant neoplasms may recur, as shown by Cases II, III, VII, VIII, IX, X, and XI, should make surgeons cautious in their prognosis.

The following case is cited to show that, even though there was no recurrence of the disease when the patient died, it could not properly be regarded as a permanent or an absolute cure:

CASE XII. *Spindle-celled Sarcoma; Excision and Cauterization with the Thermo-cautery; no Recurrence in Two Years; Death from Pneumonia.*—Mr. M., sixty-two years of age, came to solicit surgical aid, saying that, two years before, he had noticed a small, hard, flat, circular, circumscribed, movable, and painless subcutaneous growth in the left temporo-malar region. This tumor increased in area until it attained an inch and a half in diameter at the time the patient presented himself for treatment.

Immediate excision, followed by cauterization, was advised and performed. An incision was made through the apparently

healthy skin a quarter of an inch from the margin of the growth, which was carefully dissected out. The whole surface of the wound, together with an eighth of an inch of the surrounding integument, was thoroughly cauterized with the thermo-cautery, and a layer of dry cotton applied to the cauterized region. Cicatrization was complete in three weeks, and no deformity ensued.

The microscopical examination proved the growth to be a spindle-celled sarcoma.

In two years there was no sign of recurrence of the disease. Shortly after this the patient died of acute lobar pneumonia.

It would assuredly not be fair to assume that, had this patient lived another year, the disease would not have recurred. Even if the case had been styled a permanent cure—*i. e.*, a cure lasting to the end of the patient's life—it could not properly have been called an absolute cure, for the reason that the patient died within the period of a possible recurrence of the disease. It is, therefore, very questionable if the terms permanent cure and absolute cure should be applied in the case of malignant neoplasms. The simple word cure, in the sense of restoration of health, seems sufficient, in view of the fact that the period of immunity from the disease after its extirpation is so uncertain.

The question, *Are malignant neoplasms ever cured?* may then be answered (1) from a strictly scientific and (2) from a clinical point of view. In the first case the answer will be negative, while in the second case it may be affirmative with qualifications. From a scientific point of view, it can not be said that malignant neoplasms are cured, since it is known that their tendency to recur is strong, and that the period of their recurrence is indefinite—if the term cure be used in the sense of restoration of health without limitation, so far as the particular disease is concerned. But if, from a

clinical point of view, the term cure be used in the sense of temporary restoration of health, so far as the particular disease is concerned, it may then be said that malignant neoplasms are practically cured, especially when the period of immunity is extended to eight, ten, fifteen, twenty, thirty, or forty years after excision. A reasonable doubt as to accuracy of diagnosis naturally arises when a neoplasma, said to be malignant, is declared cured many years after its ablation, unless its relation come from an experienced clinician and include the statement of a searching microscopical examination of the excised growth by a competent patho-histologist, or unless it be known to have recurred in after-years, as in some of the cases herein reported.

The allusion to diagnosis in the preceding paragraph suggested the following note :

About thirty years ago a delicately constructed instrument, much employed by Duchenne and other Frenchmen, and also by Americans, afterward variously modified under the name of harpoon, was contrived for the exploration of deep-seated diseased tissues and the removal from their substance of a small segment for microscopical examination. This explorer, though still much used by physicians, seems to be little employed by surgeons. It should occupy its proper place among instruments of precision for the diagnosis and prognosis of neoplasms, and should be resorted to in most cases, where there is a doubt as to the nature of growths, before deciding upon the character of the operation to be performed. But the exploration should be followed by the operation as soon as the microscopical examination can be made, within an hour if possible, in order to guard against metastasis. A case lately occurred at Bellevue Hospital in which there was reason to believe that metastasis to the internal organs was the consequence of two such explorations, the first seven, the second three days before the operation of orchidectomy for a medullary carcinoma. The patient died in six weeks after the operation, from medullary carcinoma

of the mesenteric glands, liver, pancreas, and kidneys. Before the operation and for two weeks thereafter he had had no symptoms of internal disease.

When the opinion of a patho-histologist is solicited in regard to the nature of an excised tumor, he should be allowed to make a gross anatomical inspection of the entire tumor, and to indicate the removal from it of such portions as he may require for microscopical examination. When only particles of a tumor are removed for diagnosis before the operation of excision, it is not to be expected that he will be able to discover the nature of the tumor from the examination of these small parts unless they be removed from the body and not from the surface of such tumor. It is generally very difficult to form a decided opinion as to the nature of a tumor by the study of a very small portion of the growth, for small fragments may contain nothing characteristic of a particular neoplasma, and he who makes the microscopical examination in such a case can only report that he has found nothing to indicate the exact nature of the tumor.

Before dismissing the question of cure, it was thought proper to formulate briefly certain principles and procedures that may be advantageously applied in connection with the extirpation of neoplasmata and their medicinal after-treatment.

1. A suspicious neoplasma, susceptible of excision, can not too soon be removed. The earlier the operation the greater the chances of prolonged immunity.

2. In the excision of malignant neoplasmata, as much of the neighboring apparently healthy tissues should be sacrificed as is compatible with sound judgment.

3. Immediately after the excision of malignant neoplasmata careful search should be made for diseased neighboring lymphatic ganglia, all of which should be removed.

4. Excision of multiple malignant neoplasmata is contra-indicated, particularly when they invade many lymphatic ganglia, or when they are disseminated in hundreds upon

the surface of the body. If, however, there be among them a very large growth, seriously interfering with a vital function, the excision of this growth is warranted on account of the temporary benefit that may thus be conferred upon the sufferer.

5. When a malignant growth is in a state of ulceration, and this necrotic process and consequent putrescent discharges become a source of exhaustion to the patient, the growth, if accessible, should be forthwith removed. By this means suffering is mitigated and the life of the patient is rendered more tolerable, and may even be prolonged many months.

6. When hæmorrhage from a malignant growth threatens life, the diseased mass, if within reach, should be extirpated without delay, to prevent sudden death from a great loss of blood, though the general infection be such as to give the surgeon little hope that the patient will live more than a few weeks.

7. When an ulcerated malignant growth involves a large cutaneous surface, a cutting operation being contra-indicated, applications of sundry kinds, such as cataplasms, soothing lotions, deodorizers, etc., should be made, and opiates should be administered in sufficient quantity to mitigate pain and insure sleep.

8. Whenever its locality and other circumstances are favorable, the whole wound resulting from the excision of a malignant neoplasma should be cauterized as freely as the nature of the case will permit.

Cases I, V, XII, and the following case (XIII), illustrate, among other points of interest, the extent of surface to which the cautery may be safely applied, particularly Cases V and XIII.

CASE XIII. *Cutaneous Epithelioma in the Hypogastric Region ; Excision and Cauterization with the Thermo-cautery.*—

N. R., fifty years of age, was admitted to Bellevue Hospital on the 6th of November, 1886, suffering from a somewhat painful ulcer in the hypogastric region, measuring two inches and a half by three inches and a half and having the gross characters of an epithelioma, which had made its appearance five months prior to his admission to the hospital. Excision, followed by cauterization, was advised and performed on the 13th of November, 1886. The circumscribing incision was made a quarter of an inch beyond the indurated margin of the growth, which was dissected from its bed. The whole denuded surface, together with a quarter of an inch of the surrounding integument, was freely cauterized with the thermo-cautery and a light dressing applied.

The microscopical examination of the growth was made by Dr. H. M. Biggs, whose report was confirmatory of the diagnosis epithelioma.

On the 18th of November the dressing was removed, with a part of the slough, exposing a granulating surface of three inches and a half by five inches and a half, which, on the 10th of January, 1887, was entirely healed.

The patient was seen in May, 1888. The cicatrix was sound and firm, and there was no sign of recurrence.

For some years past the thermo-cautery has been used to a considerable extent in the surgical treatment of malignant neoplasmata, one of the ways in which it has been applied being to make, with the cautery-knife, a deep incision around the growth, which is left in its place to slough if it will. But, in accordance with the principles of sound surgery, it would seem much preferable to excise the entire growth and immediately afterward to cauterize the whole denuded surface and the edges of the wound, as described in Cases I, V, XII, and XIII, than to allow the diseased mass to slough out and perhaps leave behind the germ of another growth.

The anhydrous sulphate of zinc, the chloride of zinc, chromic acid, and other potential cauterics have been used

with good effect immediately after the excision of malignant neoplasmata, but the actual cautery is quicker and more certain in its effect. On these accounts it is preferable to the potential cauteries.

It is not proposed to discuss the entire question of potential cauteries, but mention should be made of Maison-neuve's caustic arrows which have been employed in some cases where ablation with the knife could not be practiced; but they, as well as the other potential cauteries, have been used also in ordinary cases.

The application of any irritant, or a slight cauterization with nitrate of silver, in the case of epithelial growths that have been inactive for several years, has been known to cause their rapid extension and to lead to a fatal issue in the course of a few months, whereas a radical operation with the knife would have given a fair chance of immunity from the disease, possibly for a long period.

Charlatans, still preying upon the credulity of the people, are exploiting their "specifics" and arsenical and other pastes and plasters, which they appear to use without the least discrimination, their "cures" being effected only in the case of benign tumors, to which they almost invariably give the name of cancer. These pastes and plasters, which cause the most excruciating pain for several hours, almost always fail to remove the entire tumor in the case of true cancer. The portion thus left behind, however small it be, grows with great vigor in its newly tilled soil, for the ensuing irritation favors very active cell-proliferation, and in a few months the disease invades the surrounding tissues and lymphatics to the extent of sometimes contra-indicating excision, or has so infected the organism as soon to prove fatal.

The persistent local application of ice as a mode of treatment of some malignant neoplasmata was employed in

1848 by Bennett, in 1850 by Arnott, in 1852 by Simon, and afterward by Follin and Velpeau; but this agent was found only to retard the development of, and not to cure, these growths. Simon reports a case of breast cancer of the "size of an orange" which, he says, nearly disappeared in thirty-four days from the beginning of the application of pounded ice, but the disease soon after greatly increased, and the patient died in about eleven months.

For the eradication of malignant neoplasmata, compression, electricity in several of its different forms, ligation of the principal nutrient arteries of the growths, and many other more or less harsh methods, have been tried in vain. Early extirpation by means of the much-dreaded knife, particularly when it could be supplemented by the actual cautery, seems to have given the best results.

9. The medicinal treatment of malignant growths has been too generally discarded of late years. This treatment fell into disrepute because of the inconsiderate and extravagant claims made for many so-called specifics, and because it was used as a distinct means of "cure" and not as an adjuvant of surgical treatment. Very much mischief has been the outcome of attempts made to cure malignant tumors exclusively by means of internal medication which is so delusive as to lead both physician and patient to temporize until it is too late for operative interference. No kind of medicinal agent so administered has ever cured malignant tumors. Nothing short of their extirpation, principally with the aid of the knife, has ever been of any avail, and this mode of treatment often requires to be supplemented by the cautery and to be employed in an early stage of the disease. Then, and only then, are the longest periods of immunity likely to follow, and only as a help to this end is constitutional treatment of any use.

In conclusion, and as a topic of general interest, a few

of the medicinal substances used from time to time in the treatment of malignant tumors will be briefly noticed.

Innumerable "cancer specifics," some of them most loathsome, have been taken by the people in times long past, through ignorance and superstition. Even at present not a few persons advocate the employment of the most hurtful nostrums.

In the last century Stoerk proposed the use of hemlock in the treatment of cancer, and this therapeutic agent continued to be largely used by many physicians until very late years, and even now a few medical practisers persist in its employment.

Among the more modern remedies may be mentioned the red-clover tea and the tinctures of thuya and of hydrastis, the latter in doses of fifteen drops, repeated three times each day for several months.

Chian turpentine, so much in vogue twenty years ago in the treatment of cancer, has, in the last few years, been re-introduced into practice by Professor Clay, of Birmingham, England. He gives it in emulsion, and asserts that it is very efficient in carcinomata and epitheliomata, even when in an advanced stage.

The proposition of Auzias Turenne to syphilize patients recently operated upon for cancer should not be omitted from catalogues of curiosities of the literature of cancer therapeutics.

Those who reject medicinal after-treatment in cases of cancer ablation go to the other extreme of error. Many surgeons of large experience and excellent judgment favor a vigorous course of medicinal and hygienic treatment, and believe that iron, arsenic, and other reconstituents greatly aid in prolonging the period of immunity from malignant neoplasms after their excision.

APPENDIX.

THE following schema, from an essay on the classification of tumors now in course of preparation, is appended to illustrate the method of nomenclature and classification suggested at the beginning of this discussion, the order epithelial neoplasmata, its genus, species, varieties, and sub-varieties having been selected for the purpose.

The anatomical basis is closely adhered to in this nomenclature and classification—that is to say, all the departments of anatomy are made subservient to its purposes. Any single department would not suffice to constitute the basis, while all jointly give a stable and solid foundation. Thus, descriptive anatomy, physiology, embryology, histology, etc., and the law of Müller, the blastodermic theory, morphism, and even ætism, are all laid under contribution as occasion requires.

CLASS I. NEOPLASMATA.

ORDER I. EPITHELIAL NEOPLASMATA.

GENUS I. EPITHELIOMA.

Species 1. Polymorpho-cellular epithelioma (*cancer*).

Variety 1. Polymorpho-cellular ino-epithelioma (*medullary cancer*).

Variety 2. Polymorpho-cellular hyperino-epithelioma (*scirrhous cancer*).

Subvariety 1. Telangiectatic polymorpho-cellular ino-epithelioma (*fungus hæmatodes*).

Species 2. Cylindro-cellular epithelioma.

Variety 1. Cylindro-cellular ino-epithelioma.

Subvariety 1. Papillary cylindro-cellular ino-epithelioma.

Subvariety 2. Telangiectatic cylindro-cellular ino-epithelioma.

Species 3. Squamo-cellular epithelioma (*epithelioma*).

Variety 1. Myxoid squamo-cellular epithelioma.

Variety 2. Keratoid squamo-cellular epithelioma.

Subvariety 1. Papillary squamo-cellular epithelioma.

Of the order epithelial neoplasmata, epithelioma is the only genus, and this genus has three species.

The names given to the order and genus indicate that they comprise all epithelial new-growths.

The name given to *Species 1* indicates that the tumor is chiefly composed of cells of many forms, constituting one of the essential characteristics of what is commonly called cancer.

Variety 1, of Species 1, bears the name of the species with the affixion of *ino* to indicate that it contains fibrous tissue; the fibrous tissue forming alveoli, with thin walls, in which the cells are inclosed. This is one of the essential characteristics of what is known as medullary cancer.

Variety 2, of Species 1, bears the name of the species with the affixion of *hyperino* to indicate that it has an excess of fibrous tissue; the excess of fibrous tissue forming thick-walled alveoli in which the cells are enclosed. This is the essential characteristic of what is known as scirrhus cancer.

Subvariety 1, of Variety 1, bears the name of the variety with the affixion of *telangiectatic* to indicate that the tumor contains dilated blood-vessels. This is the main characteristic of what has been called fungus hæmatodes.

The polymorphism of the cells of this species of epithelioma, and the presence of fibrous tissue in its varieties, show it to be derived from the elements of the epiblast, hypoblast, and mesoblast.

Species 2 is named to indicate that the tumor is chiefly composed of cylindrical epithelial cells.

Variety 1, of Species 2, bears the name of the species with the affixion of *ino* to indicate that it contains fibrous tissue.

Subvariety 1, of Variety 1, bears the name of the variety with the affixion of *papillary* to indicate that its surface is covered with papillary projections.

Subvariety 2, of Variety 1, bears the name of the variety with the affixion of telangiectatic to indicate that it contains dilated blood-vessels.

The form of the cells of this species of epithelioma shows that it is derived from the elements of the hypoblast.

Species 3 is named to indicate that the tumor is chiefly composed of squamous epithelial cells. This is the essential characteristic of what is commonly called epithelioma.

Variety 1, of Species 3, bears the name of the species with the affixion of myxoid to indicate that its cells are like those of the mucous layer of the epidermis.

Variety 2, of Species 3, bears the name of the species with the affixion of keratoid to indicate that its cells are like those of the external layer of the epidermis, and show a tendency to horny formation.

Subvariety 1 is named to indicate the existence of papillary projections from the surface of the growth.

The form of the cells of this third species of epithelioma shows that it is derived from the elements of the epiblast.

Colloid and melanotic are not included among the subvarieties any more than other degenerations and infiltrations, on account of the fact that not only the tumors but other diseased tissues of the body are liable to colloid and fatty degeneration, and to pigmentary and calcareous infiltration.

The tumor called atrophying (shriveling) scirrhus cancer is also excluded from this classification for the reason that the condition in question is not essential to any species, variety, or subvariety. It is simply an incidental retrograde metamorphosis, a sclerous degeneration of the fibrous tissue of a polymorpho-cellular hyperino-epithelioma.



REASONS WHY

Physicians Should Subscribe

FOR

The New York Medical Journal,

EDITED BY FRANK P. FOSTER, M. D.,^{*}

Published by D. APPLETON & CO., 1, 3, & 5 Bond St.

1. **BECAUSE** : It is the *LEADING JOURNAL* of America, and contains more reading-matter than any other journal of its class.
2. **BECAUSE** : It is the exponent of the most advanced scientific medical thought.
3. **BECAUSE** : Its contributors are among the most learned medical men of this country.
4. **BECAUSE** : Its "Original Articles" are the results of scientific observation and research, and are of infinite practical value to the general practitioner.
5. **BECAUSE** : The "Reports on the Progress of Medicine," which are published from time to time, contain the most recent discoveries in the various departments of medicine, and are written by practitioners especially qualified for the purpose.
6. **BECAUSE** : The column devoted in each number to "Therapeutic Notes" contains a *résumé* of the practical application of the most recent therapeutic novelties.
7. **BECAUSE** : The Society Proceedings, of which each number contains one or more, are reports of the practical experience of prominent physicians who thus give to the profession the results of certain modes of treatment in given cases.
8. **BECAUSE** : The Editorial Columns are controlled only by the desire to promote the welfare, honor, and advancement of the science of medicine, as viewed from a standpoint looking to the best interests of the profession.
9. **BECAUSE** : Nothing is admitted to its columns that has not some bearing on medicine, or is not possessed of some practical value.
10. **BECAUSE** : It is published solely in the interests of medicine, and for the upholding of the elevated position occupied by the profession of America.

Subscription Price, \$5.00 per Annum. Volumes begin in January and July.

